

### PRICES SYSTEMS ELECTRICITY (Supplement to n° 22 - 1991)

Council Directive No 90/377/EEC of 29 June 1990 lays down a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users.

In accordance with Article 1.2, this note sets out a summary of the price systems in force received after the preparation of the previous rapid reports (16/12/1991).

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#### DENMARK

##### 1. Description of the electricity market: (January 1991)

105 distributing companies supply the 2.8 million consumer installations. The total final consumption in 1990 was 28585 GWh. 12 generating companies supply the distributing companies. 3 of these companies are vertically integrated. Each utility in practice has its own geographical delimited supply area. The distributing companies range from yearly sales of 20 to 5050 GWh.

In each generating company supply area a number of distributing companies buy their power from the generating company or - to a lesser degree - from private generators.

##### 2. Tariff-systems

The 105 distributing companies have each their tariffs. However the tariff-systems for industrial consumers fall within the following types:

- Tariffs with 3 elements:

- \* a standing charge
- \* a capacity charge
- \* an energy charge

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The energy charge can be a flat rate or a time of day rate with 2 periods:

- Time of day tariff with 2 elements:

- \* a standing charge
- \* an energy charge with 3 periods

All tariffs are published. The tariffs are collected by the Association of Danish Electric Utilities in a yearly report published in March/April. Normally the tariffs only change as of the 1. January.

Almost 100% of consumers - also industrial consumers - pay according to the tariffs published.

### 3. Taxation

Energy-taxes and VAT are reimbursed to all VAT-registered consumers. The energy-tax of 33 ore/kWh and the VAT of 22% consequently are not paid by industry.

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## GERMANY

### Industrial electricity pricing system

Legal relations between electricity supply utilities (ESUs) and industrial customers are based on individual electricity supply contracts ("special contracts") concluded by the parties involved. Up to a certain demand that can still be supplied with medium voltage (approximately up to 20 kV), the different ESUs have developed standard contracts with identical texts and tariffs.

Although there are differences in prices between ESUs, the tariff structure for medium-voltage supply is largely identical. All ESUs offer a capacity tariff with unit prices for day and night, i.e. a dual tariff with two time zones. For special supply situations where periods of maximum load rarely coincide, some ESUs offer a time-zone tariff (no demand rate; unit rate generally also with two time zones). In some cases, there are also seasonal price differences.

Most ESUs provide the option of a "flatter" and a "steeper" capacity tariff, in some cases in addition to a time-zone tariff ("flat" tariffs have relatively low demand rates and relatively high unit rates; the opposite applies in the case of "steep" tariffs). In most supply areas, therefore, customers supplied with medium voltage can choose the most favourable tariff for their requirements from two or three different tariffs when concluding a contract.

### Demand tariffs

Generally speaking, the demand rate is based on the maximum demand utilized. Invoicing is normally based on the annual chargeable demand, which is mostly determined from the average of the maximum demand over two or three months (actual demand in kW or apparent demand in kVA). Demand is usually measured over periods of 15 minutes, sometimes 30 minutes. In most tariffs, the demand rate (at least for a certain level of demand) is dependent on the reserved supply. In addition, some tariffs contain a utilization period discount.

Some ESUs calculate the demand rate for a demand specified by the customer and agreed in the contract; if that demand is exceeded, a higher rate is charged for the excess. The duration of the day/night time zones depends on the total load curve in individual supply areas. The off-peak period is often longer in summer than in winter, but runs from at least 22.00 to 06.00. Many ESUs offer longer off-peak periods, partly during weekend day hours.

Some ESUs whose total load curve during the day still shows considerable troughs offer their customers - in addition to the tariffs described above - the possibility of lowering their electricity costs by reducing utilized demand during certain peak periods anticipated by the ESU. However, the smoother the load distribution the fewer such possibilities there are. Large consumers who can adjust their demand to the load curve of the ESU are also often offered interruptible supply contracts.

#### Time-zone tariffs

In addition to unit costs (for different time zones) that fall as consumption rises, such tariffs contain a utilization period discount based on maximum annual demand measured over quarter-hour periods. The off-peak periods specified in the contract are generally the same as in the demand tariff of the ESU in question. These tariffs are on the decline.

#### Consumption of reactive current

Electricity supply contracts are normally based on the assumption that the electricity is delivered with a power factor of at least  $\cos \phi = 0.9$ . Since the actual power (kW) is specified in most contracts, a supplement is calculated for any reactive current consumption that exceeds this value. If, on the other hand, demand is calculated on apparent power (kVA), the customers themselves endeavour to achieve the maximum possible power factor.

#### Price adjustment

The contracts contain clauses for adjusting electricity prices during their term (generally one to three years). Coal prices and wages are mostly used as a basis for adjusting prices. No official authorization is required for applying these price adjustment clauses in electricity supply contracts.

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## GREECE

### Legal Framework

The activities of generation, transmission and distribution of electricity in Greece are subject of responsibility of the PUBLIC POWER CORPORATION (PPC) set up by law in 1950.

PPC is an enterprise with legal status of private law, serving however the public interest.

Functions which relate to control and coordination in the electricity sector are dealt with by various state administrative bodies, as :



- a. The Ministry of Industry Energy and Technology, which supervises PPC's activities approves PPC's Development Plan and Investment programmes and gives instructions for its activity.
- b. The Ministry of National Economy, which approves PPC's budgets etc.

In Greece, 97,5 % of the electricity supply to the country is afforded by PPC. The remaining 2,5 % represents generation of electricity by self-producers, mainly industrial users, covering their own needs.

#### The tariff System

The structure and - in principle - the price level of the tariffs applied are uniform for the whole of the national territory.

All tariffs are published and each customer can choose, from the available tariffs, the one which is best suited to the nature and level of his electricity requirements.

tariff conditions take account of :

- the supply voltage: low (220-380 v), medium (20 KV), high 150 KV.
- the use (domestic, industrial, agricultural, commercial, general use)
- the level of subscribed or maximum demand (KW), low voltage (between 200 KW-10 MW) and high voltage (above 10 MW).
- the utilization time of the subscribed demand.

#### Industrial users

Three types of tariffs are provided for industrial users, as follows:

##### 1. Tariffs for low voltage industrial users.

Three tariffs are provided for this case i.e.

- a 2-part tariff, including a fixed charge and a flat energy rate.
- a 3-part tariff, providing a fixed charge, a capacity charge and a flat energy charge.
- a 2-part tariff, providing a fixed charge and a time -of-day energy charge.

##### 2. Tariff for middle voltage industrial users

There are two tariffs for middle voltage industrial users as follows:

- 2.1. The first tariff is provided for middle voltage industrial users with an effective tariff is a 2-part tariff, providing a capacity charge plus an energy 2-rate charge, relative to the maximum monthly demand for electricity.
- 2.2. The second tariff is provided for middle voltage industrial users with a less effective load factor (i.e. less than 40%). The respective tariff, is a 2-part tariff providing a capacity charge plus a flat-rate energy charge.

### 3. Tariffs for high Voltage industrial users

The respective Tariff is provided for consumers directly to the 150 KV grid.

It is a two part Tariff providing a capacity charge, plus an energy charge. It is also a seasonal time of day Tariff, since energy and capacity charge differentiated according to the period of electricity consumption, i.e. peak load hours, off-peak load hours and intermediate load hours.

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## SPAIN

The Spanish electricity sector is made up of about 1000 generating and distribution companies, but 21 of them, forming the UNESA group, account for over 97% of production for the market. Of these 21 companies, only a third are genuinely independent and there are currently strong trends towards company mergers, the foreseeable short-term result of which will be that almost all the sector will be dominated by a few corporate groups operating in the midst of large numbers of small companies active largely at the distribution end.

### Prices: Approval and control

Electricity rates in general are determined by applying a system of standard costs and charges which form the "stable legal framework" in force since 1988. In accordance with this system, the Ministry of Industry, Commerce and Tourism on the basis of a report by the Upper Price Board, submits to the Government once a year the proposal for modifications to the corresponding tariff for the financial year beginning on 1 January each year.

Once the Government, acting through the Council of Ministers, has approved the new tariffs, the above Ministry establishes the maximum prices applicable to the different types of consumers and publishes them in the Official State Bulletin. These prices are uniform rates for the entire national territory.

### Taxation

Since 1 January 1986 the only tax in force has been VAT. The current rate is 12% and is applied to the total invoice figure including, where applicable, the hire of metering equipment and other items.

Power distributing companies also pay local authorities 1.5% of amounts invoiced for electricity in the municipality, but this payment is not legally deemed to be a tax but recompense for occupation of municipal land and installation of electricity lines above and below ground.

### Pricing system

As already mentioned, power rates are uniform and public, including those of major consumers, and are ceiling prices. In theory special contracts can be freely negotiated between distributors and customers, but in practice there are hardly any such agreements or if so they refer to minor aspects, mainly because the current system of inter-company compensation makes these arrangements difficult.



### Tariff parameters and formulas

The parameters applied for classifying consumers, and hence the application of prices are:

- Supply voltage,
- Contracted power,
- Hours of power use,
- In special cases type of use: distributors, irrigation, electric traction.

Tariffs have two constituent parts: a fixed part for the power contracted and/or registered and a second variable part for the kWh consumed. The sum of these two parts constitutes the basic amount invoiced, which is generally modified by the application of discounts or surcharges for the following:

- Selected consumption times,
- Reactive power consumption,
- Season,
- Interruptibility.

### Options

To obtain the most suitable supply conditions and most favourable prices customers have the following options:

- Daily basis : double and triple tariff systems, with different prices for energy and power.
- Weekly basis : as above, but taking into account off-peak hours for the 24 hours of Saturdays and public holidays.
- Annual basis : days of the year are classified into four categories for the purposes of kWh prices, with up to three types of power catered for in contracts.
- Seasonal basis : with six contractual power types and five-tariff meter. There is also a simplified option.
- Interruptibility: Contracts valid for 5 years with a minimum interruptible power of 5 MW and four types of interruption depending on the length of notice given.

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## NETHERLANDS

### Active pooling of production costs

Because SEP and the production companies jointly bear the responsibility for the investment decisions aimed at achieving security of supply, the costs of these investment decisions are also born jointly. This is arranged as follows: the production companies supply all their power to SEP. SEP pays for this power at standard rates. The Act does not prescribe any system for this, but the standardization must contribute towards achieving the lowest possible costs. It is therefore an active system, and is certainly not designed to be used as a "claim system" for recovering all expenses incurred. By operating more efficiently, the production company can make a profit on the standard payments they receive. Of course, the reverse is also possible.

### Tariffs and distribution structure

The Act embodies a clear system of tariffs, the principle being that the tariffs must be based on the costs caused by the customers concerned. The production companies supply the power they generate to SEP, and received standard payments for it. This leads to pooling of the production costs. To these, the costs incurred by SEP are added (in particular, the costs of the grid and of power imports). SEP subsequently supplies power to the production companies at the National Base Tariff (LBT) SEP has to try to reach agreement with the VEEN on the LBT, which must be submitted to the Minister of Economic Affairs for approval. The production companies supply distribution companies at the Regional Base Tariff (RBT). The RBT is made up of the LBT plus a supplement for the production company's own costs which have not been pooled by Sep. The Act sets a maximum for the RBT. After consultation with the VEEN, that maximum RBT is submitted by the production utilities to the Minister of Economic Affairs for approval. The distribution companies subsequently supply end-consumers at end-consumer tariffs. The end-consumer tariffs consist of the RBT plus transmission and distribution costs. The Act also imposes maxima on the various types of end-consumer tariffs. Those maxima are submitted by the VEEN to the Minister of Economic Affairs for approval.



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